

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A radiation source comprising an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate electromagnetic radiation, wherein a wicking surface area of a wall defining said discharge space is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area.
2. (Original) A radiation source according to claim 1, wherein said wicking surface area is provided on at least one of said anode and said cathode.
3. (Original) A radiation source according to claim 1, wherein a cooling surface area of a wall defining said discharge space is provided with cooling to condense vaporized liquid from said discharge space to transfer heat from said discharge space to said cooling surface.
4. (Original) A radiation source according to claim 1, wherein a material comprised in said liquid is used in creating said plasma.
5. (Currently Amended) A radiation source according to claim 1, wherein said discharge space is provided with an elongated extension space, a ~~said~~ cooling surface area provided on a wall of said extension space at a distance from a central region of said radiation source.
6. (Original) A radiation source according to claim 1, wherein said radiation source comprises an energetic beam to irradiate said wicking surface area proximate said discharge space.
7. (Original) A radiation source according to claim 6, wherein said energetic beam is a beam of charged particles.

8. (Original) A radiation source according to claim 6, wherein said energetic beam is a laser beam.

9. (Original) A radiation source according to claim 1, wherein said liquid comprises an element selected from the group consisting of: xenon (Xe), tin (Sn), lithium (Li), indium (In) and iridium (Ir).

10. – 16. (Canceled)

17. (Original) A lithographic projection apparatus comprising:

a radiation system comprising an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate a projection beam of radiation, wherein a wicking surface area of a wall defining said discharge space is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area;

a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate.

18. (Original) A lithographic apparatus according to claim 17, wherein said wicking surface area is provided on at least one of said anode and said cathode.

19. (Original) A lithographic apparatus according to claim 17, wherein a cooling surface area of a wall defining said discharge space is provided with cooling to condense vaporized liquid from said discharge space to transfer heat from said discharge space to said cooling surface.

20. – 25. (Canceled)

26. (New) A radiation source according to claim 1, further comprising a hollow receptacle arranged on an optical axis of said radiation source, an open end of said receptacle directed to said discharge space to capture contamination emitted from said discharge space.

27. (New) A radiation source according to claim 26, wherein said receptacle is configured to be cooled to enhance trapping of contamination on inside walls of said receptacle.

28. (New) A radiation source according to claim 1, further comprising an aperture provided in said anode or said cathode through which said electromagnetic radiation is emitted, said aperture comprising a plurality of electrically-conductive structures arranged so as to leave said aperture substantially open to said radiation but to substantially close said aperture electrically.

29. (New) A radiation source according to claim 29, wherein said structures are configured to be cooled.

30. (New) A radiation source according to claim 1, comprising at least one closed heat pipe.

31. (New) A radiation source comprising an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate electromagnetic radiation, wherein a wicking surface area of a wall defining said discharge space is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area, said anode, said cathode, or both being substantially vertically located above the liquid reservoir.

32. (New) A lithographic projection apparatus, comprising:

a radiation system comprising an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate a projection beam of radiation, wherein a wicking surface area of a wall defining said discharge space is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking

surface area, said anode, said cathode, or both being substantially vertically located above the liquid reservoir;

a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate.

33. (New) A lithographic projection apparatus comprising:

a radiation system, comprising:

an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate a projection beam of radiation,

an aperture provided in said anode or said cathode through which said projection beam of radiation is emitted, said aperture comprising a plurality of electrically-conductive structures arranged so as to leave said aperture substantially open to said projection beam of radiation but to substantially close said aperture electrically, and

a wicking surface area of a wall defining said discharge space configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area;

a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate.

34. (New) A lithographic projection apparatus, comprising:

a radiation system, comprising:

a radiation source comprising an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate a projection beam of radiation and a wicking surface area of a wall defining said discharge space configured to transport

a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area, and

a hollow receptacle arranged on an optical axis of the radiation source, an open end of the receptacle directed to the radiation source to capture contamination emitted from the radiation source;

a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate.

35. (New) A radiation source, comprising:

an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate electromagnetic radiation;

a wicking surface area of a wall defining said discharge space that is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area; and

an elongated extension space of the discharge space, a cooling surface area of a wall defining said extension space configured to be cooled by a cooler to condense vaporized liquid from said discharge space and provided at a distance from a central region of said radiation source.

36. (New) A lithographic projection apparatus comprising:

a radiation system, comprising:

an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate a projection beam of radiation,

a wicking surface area of a wall defining said discharge space that is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area, and

an elongated extension space of the discharge space, a cooling surface area of a wall defining said extension space configured to be cooled by a cooler to condense

vaporized liquid from said discharge space and provided at a distance from a central region of said radiation system;

a support structure configured to hold a patterning device, the patterning device configured to pattern the projection beam according to a desired pattern;

a substrate table configured to hold a substrate; and

a projection system configured to project the patterned beam onto a target portion of the substrate.

37. (New) A radiation source, comprising:

an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate electromagnetic radiation;

a wicking surface area of a wall defining said discharge space that is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area;

an isolator configured to electrically separate the anode and cathode; and

a cooler located near the isolator and configured to condense vapor to reduce contact of the vapor onto the isolator.

38. (New) A radiation source, comprising:

an anode and a cathode that are configured and arranged to create a discharge in a substance in a discharge space between said anode and cathode and to form a plasma so as to generate electromagnetic radiation, said cathode and said anode being substantially concentric and said anode being disposed at least in part around and outside the cathode; and

a wicking surface area of a wall defining said discharge space that is configured to transport a liquid towards said discharge space from a liquid reservoir in contact with said wicking surface area.